

Project Title

Preliminary View of The Impact of AI on Creative Writing

Project Objective or Aim

How much of an impact does AI, in its current state, have on the quality and efficiency of the creative writing process? This is the question my research project seeks to answer through testing a random sample of students at the University of Central Florida. Provided with a creative writing prompt and limited time, two separate groups of students will be tested on how quickly they can complete the prompt and the quality of their work.

Project Background and Significance

Artificial intelligence has always been a topic of fascination since the discipline's inception in the early 1950s. While the idea has been around for a long time, perhaps only recently has it truly risen to prominence as we see a surge in popularity and interest outside of just the professional tech sphere, and it's no surprise.

With recent developments in artificial intelligence many people have been granted access to very powerful tools which can perform image generation (DALL-E and Stable Diffusion), can be asked questions to aid on a broad range of topics (ChatGPT), can generate videos and voice samples using people as a template (Murf), and more. With the rise in artificial intelligence comes concerns and doubts about the future of many people's professional careers, and many conflicts have already arisen because of AI. For example, changes have been made to many art forums that target AI-generated art, forcing users to tag artwork that was generated using AI tools.

One of the major events of 2023 was the writer's strike, one of the longest interruptions to the media industry in recent years. One of prominent demands made by the strikers was to explicitly restrict the use of AI as a tool to aid in creating scripts, as many writers were worried that they would soon be replaced by AI writing tools. In broad terms many today feel that their jobs may be at risk with the increasing presence of AI, and so I've decided to set out and discover just how much of an impact AI, in its current form, has on the creative writing process.

I feel that the advent of AI in many fields is inevitable, and without being able to accurately assess its impact we won't be able to properly address the concerns that its presence will

bring up. Being able to assess its impact early will be crucial, as the technology can only improve.

Research Methods

The testing will be conducted in monitored computer laboratories and distributed online to the study participants. The applications to participate in the study will be sent to the university students through their school email and from the list of applicants we'll randomly select 60 participants. The project will consist of two groups of 30 students: the AI group and the non-AI group. This constitutes our test group and control group, respectively.

The information our application will collect will be the student's name, age, gender, nationality, and major. Collecting the age, gender, nationality of students will allow us to collect information from a diverse, but balanced, group of students. Finding out the major of the participants will allow us to balance the writing abilities of the two groups so that a scenario where a group consists mostly of English majors can be avoided.

While being an English major may not necessarily make an individual a better creative writer than someone else, we'd like to avoid any variables that may interfere with the results. The participants of the study will only be made aware that they'll be conducting a creative writing test, and individuals will be unaware of the different conditions of the two groups, and therefore their own group, until they've entered the testing environment.

The two groups will be tested at the same time in separate laboratories and provided the same prompt, but one group will be given access to ChatGPT to aid them in their writing. The second group will be provided with an explanation of how to use ChatGPT in case they are unfamiliar with the technology.

The time of submission will be recorded through the platform on which the participants will be taking the test. The key values we'll be looking for are the minimum time, maximum time, and average time it took for each group to complete the test. We'll also categorize the completion times into groups of time ranges which it took them to complete the test. For example, we could have a time range of 50 to 60 minutes for test completion and have 4 students which fall into that category.

Afterwards a small board of professionals in writing will be given digital copies of all the submissions, without being told which group each submission belongs to, to judge. They'll be using a simple 5-point scale, where 1 signifies a very bad story and 5 signifies a very good story.

After all the tests have been judged we'll average the ratings of both groups to see which, if any, performed better. We'll also keep a count of the number of times each rating appeared for each group, for example after the experiment one group may have four 5-point ratings, nine 4-point ratings, thirteen 3-point ratings, three 2-point ratings, and one 1-point rating.

Expected Outcome

Following the project, we expect to publish an article of our findings. While the results for the quality and time between the two groups can't be accurately judged before conducting the study, we expect to see a noticeable difference in at least one of the test variables between the two groups. We expect that the test group, with the aid of ChatGPT, will be able to complete their creative writing prompts faster than the control group.

However, we only expect that one of the two variables will show a noticeable difference, believing that the test group will either:

1) Submit their work immediately upon completing the prompt with ChatGPT's help

Or

2) use the extra time granted to them by finishing the prompt so quickly to further refine the quality of their writing

Depending on which options for the students choose as a collective we may have a scenario where the averages of the two groups are about the same simply because the spread of students choosing options 1 and 2 are relatively even. We'll be recording the number of students who completed the test within certain time ranges and the number of students that got each rating for both groups, allowing us to eliminate an issue where the averages don't accurately reflect the differences in performance for both groups.

The outcome of this project will allow us a preliminary view of the kind of impact AI can have on individual capabilities in broad terms. While our project seeks to answer this question with a broad range of subjects, in the future it may interest us to conduct a similar experiment with subjects that typically perform poorly in the field. This might provide us with greater contrast in the variables for both groups. It could also provide us with a view of the kind of impact AI may have on the barrier of entry for some work fields. We may see a future where people well versed in using AI for writing are just as competitive in the workforce as those who went to a university to study writing, at least at the entry level.

Literature Review

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Preliminary Work and Experience

As a computer science major, I have much experience with technology, including the relevant technology needed for this project. I have prior experience using ChatGPT, the chatbot AI which will be used in the study, along with other forms of AI tools like DALL-E (image generation) and Grammarly (spell checking).

I've also been keeping close track of developments in the field of AI, and I believe that my experience and interest in the AI field and its impact make me a suitable candidate to lead this project centered around the topic.

IRB/IACUC statement

This proposal will require IRB approval, as it will involve human subjects.

Budget

Payment for the Test Proctors: $(2 \text{ hrs.} \times \$15) \times 2 \text{ proctors} = \60

Estimated time spent scoring each paper is 5 minutes, for 60 papers: 300 minutes (about 5 hours)

Payment for the Judges: $3 \text{ judges} \times (5 \text{ hrs.} \times \$20) = \$300$

Research Staff Pay:

Estimated time choosing participants: 3 hours

Estimated time creating a writing prompt and setting up the test environment: 3 hours

Estimated time sorting research results: 3 hours

$\$15 \times 6 \text{ hours} = \135

Potential additional charges include charges to send emails to all students in the school and charges to reserve computer laboratories. The estimated cost of reserving computer labs for testing is \$100 each.

Estimated Budget (including additional charges): \$800